



Onda Corporation
 592 Weddell Drive, Suite 7, Sunnyvale, CA 94089
 PH: (408) 745 - 0383 FAX: (408) 745 - 0956

Acoustic Properties of Solids

Ref	Material	Vendor	VL mm/: s	VS mm/: s	D g/cm3	ZL MRayl	F	Loss dB/cm
AS	Alumina	Mason	10.52		3.86	40.6		
CRC	Aluminum - rolled		6.42	3.04	2.70	17.33	0.355	
RLB	Aluminum - 6262-T9		6.38		2.73	17.41		
	AMD Res-in-all - 502/118, 5:1	AMD	2.67		1.35	3.61		
	AMD Res-in-all - 502/118, 9:1	AMD	2.73		1.35	3.68		
JA	Araldite - 502/956	Ciba	2.62		1.16	3.04		
JA	Araldite - 502/956, 10phe C5W	Ciba,Li	2.60		1.23	3.19		
JA	Araldite - 502/956, 20phe C5W	Ciba,Li	2.54		1.39	3.52		
JA	Araldite - 502/956, 30phe C5W	Ciba,Li	2.41		1.50	3.62		
JA	Araldite - 502/956, 40phe C5W	Ciba,Li	2.31		1.67	3.86		
JA	Araldite - 502/956, 50phe C5W	Ciba,Li	2.13		1.95	4.14		
JA	Araldite - 502/956, 60phe C5W	Ciba,Li	2.10		2.24	4.70		
JA	Araldite - 502/956, 70phe C5W	Ciba,Li	1.88		3.17	5.95		
JA	Araldite - 502/956, 80phe C5W	Ciba,Li	1.72		4.71	8.11		
JA	Araldite - 502/956, 50phe 325mesh W	Ciba,Li	2.16		2.86	6.17		
JA	Araldite - 502/956, 60phe 325mesh W	Ciba,Li	1.91		2.78	5.33		
JA	Araldite - 502/956, 70phe 325mesh W	Ciba,Li	1.82		3.21	5.84		
JA	Araldite - 502/956, 80phe 325mesh W	Ciba,Li	1.64		4.55	7.45		
JA	Araldite - 502/956, 90phe 325mesh W	Ciba,Li	1.52		8.40	12.81		
AS	Arsenic tri sulphide As ₂ S ₃	Ch	2.58	1.40	3.20	8.25	0.29	
	Bacon P38	Bacon	4.00	2.17	1.90	7.60	0.29	13.5 @ 5
M	Bearing babbit		2.30		10.1	23.2		
CRC	Beryllium		12.89	8.88	1.87	24.10	0.046	
	Bismuth		2.2	1.1	9.8	21.5	0.33	
	Boron carbide		11.0		2.4	26.4		
PK	Boron nitride		5.03	3.86	1.965	9.88		
	Brass - yellow, 70% Cu, 30% Zn		4.70	2.10	8.64	40.6	0.38	
	Brick		4.3		1.7	7.4		
	Cadmium		2.8	1.5	8.6	24.0	0.30	
AS	Carbon -pyrolytic, soft, variable properties		3.31		2.21	7.31		
AS	Carbon - vitreous, very hard material	Fl	4.26	2.68	1.47	6.26	0.17	



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AS	Carbon - vitreous, Sigradur K	Si	4.63		1.59	7.38		
	Columbium (same as Niobium) m.p. 2468°C	C	4.92	2.10	8.57	42.4	0.39	
KF	Concrete		3.1		2.6	8.0		
CRC	Copper, rolled		5.01	2.27	8.93	44.6	0.37	
AS	DER317 - 9phr DEH20, 110phr W, r3	C,E	2.18	0.96	2.04	4.45	0.38	6.6 @ 2
AS	DER317 - 9phr DEH20, 115phr W, r3	C,E	1.93		2.37	4.58		
AS	DER317 - 9phr DEH20, 910phr T1167, r3	C,E	1.50		7.27	10.91		13.2 @ 2
AS	DER317 - 10.5phr DEH20 rt, outgass	E	2.75		1.18	3.25		
AS	DER317 - 10.5phr DEH20, 110phr W, r3	E,C	2.07		2.23	4.61		8.3 @ 2
AS	DER317 - 13.5phr mpda, 50phr W, r1	C,D,E	2.40		1.60	3.84		
AS	DER317 - 13.5phr mpda, 100phr W, r1	C,D,E	2.19		2.03	4.44		
AS	DER317 - 13.5phr mpda, 250phr W, r1	C,D,E	1.86	0.93	3.4	6.4	0.33	
AS	DER332 - 10phr DEH20, rt cure 48 hours	E	2.60		1.20	3.11		
AS	DER332 - 10phr DEH20, 120phr alumina, r2	B,E	3.18	1.62	1.76	5.58	0.32	
AS	DER332 - 10.5phr DEH20, 10phr alumina, r2	B,E	2.61		1.26	3.29		
AS	DER332 - 10.5phr DEH20, 14phr alumina, r2	B,E	2.65		1.29	3.41		
AS	DER332 - 10.5phr DEH20, 30phr alumina, r2	B,E	2.75		1.37	3.78		
	DER332 - 11phr DEH20, 14phr alumina, r10	B,E	2.71		1.29	3.49		5.4 @ 2
AS	DER332 - 11phr DEH20, 150phr alumina, r2	B,E	3.25		1.83	5.95		
AS	DER332 - 11phr DEH20,150phr alumina,50phr LP3,rt	B,E,T	2.35		1.72	4.05		23.7 @ 2
AS	DER332 - 14phr mpda, 30phr LP3, 70°C cure	D,E,T	2.59		1.25	3.24		8.3 @ 2
AS	DER332 - 15phr mpda, 60°C cure	D,E	2.68	1.15	1.21	3.25	0.37	6.7 @ 2
AS	DER332, 15phr mpda, 25phr LP3, 76°C cure	D,E,T	2.55	1.18	1.24	3.16	0.36	7.4 @ 1.3
AS	DER332 - 15phr mpda, 30phr LP3, 80°C cure	D,E,T	2.66		1.24	3.30		8.8 @ 2
AS	DER332 - 15phr mpda, 50phr alumina, 60°C cure	B,D,E	2.8	1.43	1.49	4.18	0.32	
AS	DER332 - 15phr mpda, 60phr alumina, 80°C cure	B,D,E	2.78	1.45	1.54	4.27	0.31	
AS	DER332 - 15phr mpda, SiC, r5	C,D,E	3.90		2.24	8.74		
AS	DER332 - 15phr mpda, SiC, 25phr LP3, r5	C,D,E,T	3.75		2.15	8.06		
AS	DER332 - 15phr mpda, 6 micron W, r5	C,D,E	1.75		6.45	11.3		



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M	Salt - NaCl, crystalline, X- direction		4.78		2.17	10.37		
PK	Sapphire (aluminum oxide) Z-axis		11.1	6.04	3.99	44.3		
DP	Scotch tape - 0.0025" thick	3M	1.9		1.16	2.08		
AS	Scotchcast XR5235, 38 pha B, rt cure	3M	2.48		1.49	3.70		3.8 @ 1.3
	Scotchply SP1002 (a laminate with fibers)	3M	3.25		1.94	6.24		
	Scotchply XP 241	3M	2.84		0.65	1.84		
AS	Silicon - very anisotropic, values are approx.		8.43	5.84	2.34	19.7		
PK	Silicon carbide		13.06	7.27	3.217	42.0		
PK	Silicon nitride		11.0	6.25	3.27	36.0	0.26	
	Silver		3.6	1.6	10.6	38.0	0.38	
AS	Silver epoxy, e-solder 3022	Acme	1.9	0.98	2.71	5.14	0.32	16 @ 2
AE	Slate		4.5		3.0	13.5		
	Steel - mild		5.9	3.2	7.80	46.0	0.29	
	Steel - stainless 347, Zs = 24.5 MRayl		5.79	3.10	7.89	45.7	0.30	
	Stycast - 1264, rt cure	EC	2.22		1.19	2.64		
RLB	Stycast - 1264, 45pha, 600pha W, r6	EC,C	1.65		4.71	7.77		29.7 @ 5
RLB	Stycast - 1264, 45pha, 800pha W, r6	EC,C	1.57		5.50	8.65		46.5 @ 5
RLB	Stycast - 1264, 45pha, vac. impreg. W, rt	EC,C	1.71		6.03	10.4		34.1 @ 5
	Stycast - 1267	EC	2.57		1.16	3.00		4.6 @ 3.0
JA	Stycast - 1970, costs \$109.00/lb	EC	3.2		1.90	6.08		
AS	Stycast - 2651-40 9phr catalyst 9, rt cure	EC	2.77		1.5	4.16		
AS	Stycast - 2651-40 9phr catalyst 9, 10phr SiC	EC,C	2.88		1.57	4.53		
AS	Stycast - 2651-40 9phr catalyst 9, 20phr SiC	EC,C	2.95		1.63	4.82		
AS	Stycast - 2651-40 9phr catalyst 9, 25phr SiC	EC,C	2.90	1.50	1.67	4.83	0.32	
	Stycast - 2741, 1:1	EC	2.29		1.17	2.68		
M	Sulphur - 9 isotropic forms exist, mp 112°C		1.35		2.0	2.7		
M	Tantalum - mp=2996°C, very inert, hard	C	4.10	2.90	16.6	54.8		
AS	Tapox epoxy	Tap	2.48		1.11	2.76		
AS	Techform EA700, brittle material	Tech	2.63		1.20	3.14		4.6 @ 2, 5.2 @ 2.5
	Teflon		1.39		2.14	2.97		3.9 @ 5

